



United States Department of Agriculture
Forest Service

Sanpoil Project

Range Report

Prepared by:

Brandon Weinmann
Range Specialist

For:

Republic Ranger District
Colville National Forest

May 22, 2020

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at http://www.ascr.usda.gov/complaint_filing_cust.html and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer and lender.

Table of Contents

1.0 – Introduction	1
2.0 - Relevant Laws, Regulations, and Policy.....	1
2.1 - Regulatory Framework.....	1
3.4 - Resource Indicators and Measures	2
4.0 - Methodology	2
4.1 - Information Sources	2
4.2 - Incomplete and Unavailable Information.....	2
4.3 - Spatial and Temporal Context for Effects Analysis	2
5.0 - Affected Environment.....	3
5.1 - Existing Condition	3
6.0 - Environmental Consequences.....	6
6.1 - Alternative 1 – No Action – Transitory Range	6
6.2 - Alternative 2 – Proposed Action	7
7.0 - Summary	12
7.3 - Summary of Environmental Effects.....	12
8.0 - Compliance with LMP and Other Relevant Laws, Regulations, Policies and Plans	13
13.0 - References Cited.....	14

Tables

Table 1. Resource indicators and measures for assessing effects (example)	2
Table 2. Resource indicators and measures for the existing condition (example)	5
Table 3. Resource indicators and measures for alternative 1 (example)	6
Table 4. Resource indicators and measures for alternative 2 direct/indirect effects (example)	9
Table 5. Resource indicators and measures for alternative 2 cumulative effects	11
Table 6. Summary comparison of how the alternatives address the purpose and need (example)	Error! Bookmark not defined.
Table 7:Summary comparison of how the alternatives address the key issues (example).....	Error! Bookmark not defined.
Table 8. Summary comparison of environmental effects to (x) resources (example)	Error! Bookmark not defined.

1.0 – Introduction

The analysis is going to focus on changes to the range resource through the implementation of the proposed action. A variety of treatments would be applied to the National Forest System Land using several methods of commercial harvesting, non-commercial thinning, prescribed fire, mechanical piling and hand piling to promote forest health/resiliency within the planning area.

The two range attributes this analysis is going to focus on are; the increase in transitory range and the changes to natural barriers within the Quartz allotment. Treatments implemented on the landscape would increase the amount of transitory range available for livestock use and implementation of project activities to the existing vegetation could have the potential to change natural barriers. The analysis would disclose the effects to the range resource and in particular to these two range attributes.

The purpose and need of the project would result in improvements in livestock management because treatments are proposed within the boundaries of the Quartz allotment. After treatments are applied on the landscape an increase in transitory range results in more forage, a reduced stocking rate and better livestock distribution across the landscape. Better livestock distribution and the availability of increased upland forage results in livestock spending less time in riparian systems within the project area. This maintains better water quality and reduces impacts to water resources. This falls directly in line with the purpose and need of the Sanpoil Project.

The range resource is not directly related to the purpose and need of the project, but the effects of the proposed action are expected to be beneficial to the range resource and overall livestock management.

Treatments would occur on approximately 48,000 acres that reside within the Quartz allotment which is administered out of the Republic Ranger District. The analysis would mainly focus on commercial treatments within the three pastures of the Quartz allotment. Commercial treatments are the types of activities which effect the range resource regarding the amount of transitory range and if changes are going to occur to the existing natural barriers.

2.0 - Relevant Laws, Regulations, and Policy

2.1 - Regulatory Framework

2.1.1 - Land Management Plan

The Colville National Forest Land Management Plan (LMP) provides desired conditions, objectives, standards and guidelines for livestock grazing. This report incorporates the LMP by reference and is tiered to the Land Management Plan's Final Environmental Impact Statement (USDA Forest Service 2019).

Broad scale management direction for Colville National Forest grazing allotments is contained in the current LMP, which outlines the desired conditions found on page 81 of the LMP under the Livestock Grazing section.

2.1.2 - Desired Condition

The desired condition for rangelands within the Sanpoil Project is; semi-permanent rangelands would be maintained, transitory rangelands created as a result of the project and increase in forage production on a short-term basis while decreasing grazing pressure on semi-permanent rangelands.

The Colville National Forest Land Management Plan desired conditions for livestock grazing focus on plant community structure and diversity, economics and social contributions, deer and elk forage on grazing allotments, and recreation and livestock conflicts (LMP 81 and 82).

2.1.3 - Federal Law

Where consistent with other multiple use goals and objectives there is Congressional intent to allow grazing on suitable lands. (*Multiple Use Sustained Yield Act of 1960, Forest and Rangeland Renewable Resources Planning Act of 1974, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976*)

It is Forest Service policy to continue contributions to the economic and social well-being of people by providing opportunities for economic diversity and by promoting stability for communities depending on range resources for their livelihood. (FSM 2202.1)

3.4 - Resource Indicators and Measures

Table 1. Resource indicators and measures for assessing effects

Resource Element	Resource Indicator	Measure	Used to address	Source
Transitory Range	Stocking Rate	Acres Per Cow/Calf Pairs	Analysis issue	LMP 81
Natural Barriers	Specific Locations Within Treatment Units	Presence or Absence before treatment	Analysis issue	LMP 81 and RCW 16.24

4.0 - Methodology

The resource specialist used GIS to analyze the proposed action and what effects or changes it would bring to the range resource. Two attributes regarding the range resource were analyzed which pertained to the creation of transitory range and the removal of natural barriers. By reviewing the proposed action and the types of treatments proposed to specific locations across the grazing allotment within the proposed project area, an assessment determined which treatment areas would affect the current livestock management.

4.1 - Information Sources

Analysis used GIS, allotment folders, textbooks, consultation with Term Grazing Permit holders and documentation from field visits. This analysis uses evaluation and classification of the rangelands as primary, secondary, or transitory.

4.2 - Incomplete and Unavailable Information

There is no incomplete or unavailable information for rangelands.

4.3 - Spatial and Temporal Context for Effects Analysis

4.3.1 - Direct/Indirect Effects Boundaries

The temporal boundaries for analyzing the direct and indirect effects are from the time of project implementation to 30 years in the future. After the proposed action is implemented, the vegetation would return to the pre-treated condition; the forest would mature, trees would become larger, a closed canopy

would begin to form and the vegetation available to livestock for grazing would decrease. No additional projects or treatments in addition to the proposed action would have large scale effects to grazing or vegetation resources within the allotment boundary. Transitory range is temporary and becomes less productive for forage as trees begin to regenerate. Forage production for livestock can be expected to peak from as a little as a few years to a couple decades after treatment depending on several factors which are briefly discussed later in the report.

4.3.2 - Cumulative Effects Boundaries

The spatial boundaries for analyzing cumulative effects to rangelands are limited to the allotment boundaries for the Quartz allotment. Harvest activities on or near allotment and pasture boundaries may reduce natural barriers to livestock movement allowing for cattle to drift. The temporal boundaries for analyzing cumulative effects to rangelands are the same as those described for direct/indirect effects.

This report is going to analyze effects within the Quartz allotment regarding the range resource. These treatments are going to bring changes to the forage base resulting in an increase of transitory range. Stocking rates are going to be reduced due to these treatments and the range infrastructure could have additional needs because of losses to the natural barriers in order to maintain livestock management on the Quartz allotment. This project is not going to have an effect on the existing range improvement infrastructure but the manipulation of the before mentioned natural barriers and change in transitory range could require additions to the range improvement infrastructure to control livestock.

5.0 - Affected Environment

5.1 - Existing Condition

Allotment Overview

The Quartz allotment is the only active grazing allotment within the Sanpoil Project area. This is the largest allotment on the Republic Ranger District with a total of 59,195 acres. This allotment is located between the Kettle Crest (Kettle Divide) on the east side and the Sanpoil River to the west of its boundaries. It is bounded by the Colville Confederated Tribe to the south and the north is identified by the State Highway 20 east, which is the main route for traffic between Republic and Kettle Falls, Washington.

Approximate elevation for Quartz allotment ranges from 3,500 feet along the Hall Creek road to 7,103 feet on Bald Mountain. The entire allotment lays on the west side of the Kettle Crest Range. There are four major streams which flow from this allotment and include: Thirteen Mile Creek, Hall Creek, Nine Mile Creek and South Fork O'Brien Creek.

Management History

Current Management

The Quartz allotment is categorized as a cattle and horse allotment with 328 cow/calf pairs authorized to graze from June 1 to October 31 each season. The allotment is managed under a three pasture deferred rotation grazing system. It currently has two active Term Grazing Permits and the livestock are run in common throughout the deferred rotation during the grazing season. The Quartz/Brown Mtn. pasture and the 13-Mile/Iron Mtn. pasture are used as the turnout pasture on alternate years to encourage more deferment within the grazing scheme. These pastures are similar in elevation, aspect and vegetation while the Snow Peak pasture is always grazed last in the season due to the higher elevation. The vegetation within the Snow Peak pasture matures at a later date and the pasture is not conducive for turn-out with livestock due to a lack of a handling facility and logistics of trucking access.

Pastures and acres for Quartz allotment

Pasture	Acres
Quartz/Brown Mtn.	14,174
13-Mile/Iron Mtn.	22,931
Snow Peak	22,090
Total Acres	59,195

Current authorized livestock use

Pasture	Livestock Number	Season of Use
Quartz/Brown Mtn.	328 Cow/Calf	June 1 – July 21
13-Mile/Iron Mtn.	328 Cow/Calf	July 22 – August 20
Snow Peak	328 Cow/Calf	August 21 – October 31

Range Infrastructure

There is currently 1 handling facility, 9 cattle guards, over 9 miles of fence and approximately 27 water developments within the Quartz allotment.

Project Area

Allotment	Total Allotment Acres	Allotment Acres in the Sanpoil Project Area
Quartz	59,195	

Existing Condition and Indicator Measures

Existing Condition – Transitory Range is created by treatments to vegetation or by fire activity. The existing transitory range was created by these two attributes and is currently in flux depending on how long it has been since the last removal of the mature/dense timber or a sizable fire has occurred on the allotment.

Existing Condition – Natural Barriers create a physical allotment and pasture boundary which consist of a combination of fencing and mature/dense timber. Natural barriers are considered to be features present on the landscape which help to contain livestock in specific areas on the landscape within the allotments and pasture boundaries. When natural barriers are connected with fencing, livestock can be contained in specified desired locations. Natural barriers in regard to range management can consist of rock outcroppings, cliffs, talus slopes, steep slopes, dense timber, or excessive down timber. Effective natural barriers are extremely valuable to range management and grazing permittees because they reduce the need to construct fencing, eliminate costs associated with fence construction and require no maintenance.

Existing Condition Summary

The Sanpoil Project completely resides within the Quartz allotment and treatments are spread across the three pastures.

This allotment has livestock management fences and developed springs with water troughs to support livestock grazing. The condition rating of range improvements found on these allotments vary but most range between good and critical with critical needing reconstruction to properly functioning.

Generally, the loss of primary range due to conifer encroachment has been offset by the transitory range created through the even-aged timber management practices of the 1970s and 1980s. In addition, commercial thinning also occurred in combination with large wildfires. Many of these harvested areas were seeded for wildlife and livestock forage. The normal use period for transitory range in the location of the Sanpoil Project area begins a few years after treatment and lasts for about 30 years. Several years after treatment on this type of range, it reaches the end of its usefulness for livestock.

Table 2. Resource indicators and measures for the existing condition

Resource Element	Resource Indicator	Measure	Existing Condition
Transitory Range	Stocking Rate	Acres Per Cow/Calf Pairs	Acres Per Cow/Calf Pairs before treatment
Natural Barriers	Presence or Absence before treatment	Presence/Absence/Condition	No risk to Natural Barriers

5.1.1 - Resource Indicator and Measure 1

Transitory range was defined as “forested lands that are suitable for grazing for a limited time following a complete or partial forest removal” (Spreitzer 1985). As forests mature overtime, they form a closed canopy which reduces the amount of herbaceous production within these areas due to a lack of resources such as sunlight and space. For this reason, mature forest present poor habitat regarding feed for grazing and browsing animals. Fuel treatments consisting of timber removal of the mature trees to reduce the canopy cover and fire, are two methods which change the vegetation composition. This shifts the landscape back to the production of grasses, forbs and shrubs. Again, these treatments benefit permitted livestock grazing and browsing animals by increasing forage production, increasing livestock distribution and reducing the stocking rate on the landscape.

Stocking rate is defined by the Society of Range Management (1974) as the amount of land allocated for each animal unit for the entire grazable period of the year. It is typically expressed as the amount of animals per area of land. Stocking rate has more influence on vegetation productivity than any other grazing factor according to Van Poollen and Lacey (1979). For this reason, as treatments such as timber harvest are applied to the landscape in areas with a large amount of canopy cover with limited forage production in the understory, transitory range is created. As the forage production increases after the treatment, livestock are naturally attracted to these areas where the vegetation composition has shifted to understory growth. Livestock distribution is increased and the stocking rate is decreased as more grazing opportunities are presented.

5.1.2 - Resource Indicator and Measure 2

The timber sale proposes to treat stands located in all three pastures of the Quartz allotment. The pasture boundaries are currently composed of heavy/dense timber, steep topography and range infrastructure such as fencing. The existing condition provides a natural barrier along the Ninemile drainage due to the previously mentioned combination of mature forest and steep topography. Treatments would not be applied in riparian areas that would alter natural barriers for the pasture boundaries. Creation of transitory range would occur mainly in the upland portions of these three pastures of the allotment. Also, an increase in forage production of the understory would follow and livestock use would be increased away from the Ninemile Creek riparian area. An increase in herbaceous production in the upland areas with a

reduction of canopy cover, would attract livestock away from the existing pasture and allotment boundaries. Therefore, treatments would allow for existing natural barriers to remain.

6.0 - Environmental Consequences

6.1 - Alternative 1 – No Action – Transitory Range

The no action alternative would result in no timber harvest, pre-commercial thinning, or prescribed fire activities within any portion of the Sanpoil Project Area.

Short-term effects of this alternative would result in little or no change in the range resource compared to the existing condition. Livestock would continue to graze on the allotment and range improvements would exist on the landscape and be used to manage grazing.

Long-term effects of the no action alternative would be the perpetuation of denser stands of small diameter trees which are currently providing little value for production of forage. Such stands typically have closely spaced tree canopies allowing little sunlight to reach the forest floor. The understory found in these types of environments usually consists of few grasses and are therefore generally not used by livestock.

The no action alternative would allow conifers and woody species to continue encroaching into the more open and grassy areas of the allotments and thereby reduce the forage producing capability of the allotment. When trees and brush encroach into upland grassy areas, they generally become more inaccessible and unavailable to livestock. As there is less forage for livestock in the upland areas of pastures, it is likely grazing pressure would increase on lower elevation riparian areas. Livestock would not be presented with better distribution opportunities into the uplands, stocking rate would remain at the current rate and the levels of use within the riparian areas would not experience a reduction in grazing pressure.

This alternative would produce and propagate a forest condition with a large amount of natural fuels. High levels of natural fuels could result in large stand-replacing fires burning the landscape. These types of fires would likely be more damaging to the forage base which supports livestock grazing in the short term time frame than prescribed fire. Prescribed fire could be implemented during times less damaging to cool season perennial grass plants, but wildfire could occur while plants are still growing and before they have produced mature seed needed to regenerate these areas to provide better foraging habitat for livestock. Without this regeneration, adverse impacts to other areas due to increased grazing pressure could occur.

This alternative has a greater potential to decrease forage production as tree densities continue to increase. The intensity of livestock grazing would slowly increase as the forest matured producing a more closed canopy condition where use is confined to a smaller area within the allotment which remains open with understory production. The frequency at which livestock move across the landscape is also reduced because upland distribution opportunities are not created. Use is more frequent and repetitive to the available areas for grazing. Livestock are also spending more time on the same locations within the allotment increasing the duration of use to the available areas grazed. As the amount of uplands which support grazing decreases due to the encroachment of trees and brush, riparian areas experience this increased intensity/frequency of use and duration of time. Riparian areas have less rest during the growing season and time for vegetation to recover. Increased utilization of forage, higher levels of bank alteration from bank shearing and consumption of available browse are all results of this.

Under this alternative range improvements would be at greater risk of having wildfire damage or destroy them. If a wildfire were to occur within the project area, there would likely be little done to protect range improvements and the improvements would have to be reconstructed.

6.2 – Environmental Consequences – No Action – Natural Barriers

The existing stands with no treatments create natural barriers which act to restrict livestock movement to specific areas within the allotment and pasture boundaries. In areas of dense timber, where there is little or no herbaceous vegetation for an extended distance, livestock do not pass through because they do not utilize areas which are not providing adequate foraging conditions. By having intact natural barriers which limit livestock movement, there is less need for fencing to manage livestock movement.

The vegetation composition and structure would remain intact within the Quartz allotment. Natural barriers which currently exist would act as a physical barrier to maintain the current livestock management scheme. The existing natural barriers which function in regards to creating a physical barrier that would persist on the landscape. These areas currently have a high canopy cover and are areas which livestock are not attracted to or have easy access to navigate the landscape.

Table 3. Resource indicators and measures for alternative 1

Resource Element	Resource Indicator	Measure	Alternative 1 – No Action
Transitory Range	Stocking Rate	Acres Per Cow/Calf Pairs	93 Acres Per Cow/Calf Pairs
Natural Barriers	Presence or Absence before treatment	Specific Locations Within Treatment Units	Natural Barriers Remain

6.2 - Alternative 2 – Proposed Action

The proposed action consists of a host of vegetation treatments and fuel disposal methods which are expected to reduce the build-up of natural forest fuels and provide for improved forest health while protecting water quality within the project area. Vegetation treatments consist of commercial thinning, pre-commercial thinning, dead tree removal, selection harvest, and shelterwood with reserves. Fuel disposal methods consist of ladder fuel reduction, underburn's, piling of fuels by both mechanical equipment/hand piling, mastication, lop and scatter to decompose material, and biomass removal.

6.2.1 - Project Design Elements

The design elements identified here are those to address range management concerns which are specific to this project. These features and measures should be implemented in a timely manner in order to successfully mitigate anticipated effects.

Design Elements

The design elements identified here are those specified to address range management concerns which are specific to this project.

Existing, known range improvement projects would be protected from damage which may result from harvest activities.

1. All rangeland improvement projects, such as developed springs, water troughs and fences not previously identified by the NEPA inventory and analysis would be delineated during layout and protected during harvest and burning activities. Should identified range improvement projects become damaged as a result of the proposed action, contract provisions would provide for their repair.
2. Grazing permittees would be notified prior to implementing any prescribed fire or pile burning within the project area by district fire staff. This is to mitigate effects to livestock safety and grazing rotations from prescribed fire and pile burning operations. The Fire Management Officer is responsible for ensuring this measure is met.
3. Contract provisions would require all gates located in fences and next to cattle guards within the project area be left in the condition with which they are found. If the gate is found to be closed, it must be closed again immediately after use of the gate in order to keep permitted livestock in the appropriate pasture. If gates are found to be open, they should remain open.
4. Log landings should be placed on an area other than a grass/forage meadow to avoid project conflicts with livestock management and utilization of forage by livestock.
5. Motorized access for completing range improvement maintenance and salting activities. Allowing permittees the access to accomplish project maintenance on their allotments.

6.2.2 - Required Monitoring

1. Any new structures installed to manage livestock within the Quartz allotment would be checked by the range staff at least once within one year of installation and would be recorded in the INFRA database.
2. Compliance inspections to insure livestock management is occurring in accordance with the Term Grazing Permits and the official direction for grazing rotations allocated by the line officer to ensure livestock drift is not occurring, pasture rotations are obtainable and livestock management is consistent with historic use as a result of the Sanpoil Project being implemented.

6.2.3 - Direct and Indirect Effects - Alternative 2

The proposed action is going to have both direct and indirect effects to the amount of transitory range and the existing natural barriers. The direct effects of the proposed treatments of commercial treatments and fuels reduction could increase in the amount of transitory range available within the Quartz allotment. It also includes the reshaping and reduction of the natural barriers which currently exist on the landscape.

Resource Indicator and Measure 1

The proposed action is going to bring an increase of transitory range on the Quartz allotment. The Quartz allotment is currently 59,195 acres with a Term Grazing Permit of 328 cow/calf pairs. The current grazing season is from June 1st to October 31st. With the current stocking rate, the acreage allows approximately 93 acres per cow/calf pair of what is capable of being grazed based on slopes less than 40% and areas with a canopy cover of greater than 60%. This is based upon 30,657 acres considered to be capable because it is under 40% slope and less than 60% canopy cover approximately. By treating an additional 10,585 acres of the Quartz allotment, it will increase the capable acres to 41,242. The proposed treatments which create the 10,585 acres of transitory range in addition to the 30,657 accessible and capable of being

grazed by livestock would be available for use. This would reduce the stocking rate to 126 acres per cow/calf pair. There would be an increase of 33 acres per cow/calf pairs approximately after the treatments were applied through the proposed action. This application of treatments would be beneficial due to a reduction of stocking rate, better livestock distribution in the uplands, and an increase in the amount of understory vegetation which is suitable for livestock grazing.

This was concluded by finding the total amount of acres which is under 40% slope which is capable of being grazed. This number is 43,743 acres. Within these acres, another 13,086 acres are over 60% canopy cover and would not provide herbaceous forage due to the dense, heavy and mature canopy. The 13,086 acres which have more than 60% canopy cover is subtracted from the acres less than 40% slope. This provides a subset of acres which is currently capable of being grazing and is approximately 30,657. The current stocking rate is based on these acres for the amount of livestock on the Quartz allotment. The commercial treatments applied to the landscape would create an additional 10,585 acres of transitory range which would be added to the existing capable acres which would then change it to 41,242. This reduced the stocking rate by 33 acres per cow/calf pair. It also changes the existing stocking rate from 93 acres per cow/calf pair to 126 acres per cow/calf pair.

The direct effects of the proposed action regarding transitory range would be the increase of foraging areas for livestock which are currently not being utilized within the Quartz allotment. The intensity of livestock grazing would be decreased because livestock would be spread over a larger area of land. Livestock would have better distribution on the landscape because commercial treatments would make areas available which are currently mature/dense closed canopy forests and are not currently being utilized for grazing. Livestock would be attracted to the newly created understory vegetation which is directly related to an increase in the forage base.

The indirect effects of the proposed action would occur over time as the forest transitions from being more open with a reduced canopy cover, back to the dense/mature closed canopy forest of the existing condition. Effects are going to impact livestock distribution, forage base, and habituation of how livestock use the landscape over time. After treatments are applied on the landscape it creates the transitory range. These treatments would persist on the landscape for a variable amount of time depending on several attributes such as climate, slope, aspect, topography and other physical features. Benefits typically are the first several years after the treatment is applied on the landscape. The natural tendency of succession would be for these forests to again increase in density and the overstory canopy cover to become closed again.

The proposed action would increase the effectiveness of the purpose and need of the Sanpoil Project regarding treatments which increase the amount of transitory range. Again, livestock would have greater availability to upland forage and increased distribution on the landscape. This would result in lower levels of concentration by livestock, more opportunities to graze upland areas, and better livestock distribution with less concentration which directly correlates to better water quality.

Resource Indicator and Measure 2

The existing natural barriers were assessed in relationship to the treatment units which exist within the Quartz allotment. After review, the natural barriers along with existing range infrastructure such as allotment boundary and pasture boundary fence have outlined the three pasture boundaries within the allotment. These fences also work by tying into the topographic features on the landscape and the heavy/dense timber.

To the north of the allotment and within the Quartz/Brown Mtn. pasture, the units would not promote livestock drift due to the location of the units and existing allotment/pasture boundary fence. Most of the treatments within this pasture are located in the interior of the pasture and do not interface with the allotment/pasture boundaries.

Treatments within the 13 Mile/Iron Mtn. pasture are expected to promote better distribution within this area and these treatments are mostly located away from the allotment/pasture boundaries. Ninemile Creek separates the majority of the Quartz/Brown Mtn. and 13 Mile/Iron Mtn. pastures from each other and treatments are located well outside of this main riparian corridor. The natural barrier is going to exist at its current state after treatment.

The area located within the Snow Peak pasture where most of the livestock use occurs and livestock are trailed from the other two pastures, is separated by a fence. The east portion of this allotment is defined by the Kettle Crest which imposes an effective natural barrier and no units are proposed where livestock grazing historically occurs in the south of this pasture.

Again, the pre-existing topography, dense/mature timber which will remain within the project area after treatments and range improvements have created effective barriers to obtain a deferred rotation between the three pastures located within the Quartz allotment. The location of many of these vegetation treatments would only promote better livestock distribution across the landscape and could reduce pressure on several of these before mentioned barriers. The units proposed with the treatment types in regards to their specific location should not remove the natural barriers from a large scale prospective but some incidental livestock drift could occur as a result of these treatments which was unforeseen.

Table 4. Resource indicators and measures for alternative 2 direct/indirect effects

Resource Element	Resource Indicator	Measure	Proposed Action Direct/Indirect Effects
Transitory Range	Stocking Rate	Acres Per Cow/Calf Pairs	126 acres per Cow/Calf pair which is an increase of 33 acres per pair. Reduction of stocking rate, better livestock distribution in the uplands, and an increase in the amount of understory vegetation is suitable for grazing
Natural Barriers	Presence or Absence before and after treatment	Specific Locations	Natural Barriers would remain after treatment

6.2.4 - Cumulative Effects – Alternative 2

This cumulative effects analysis identifies the effects of the Sanpoil Project on livestock grazing when considered with past, ongoing, and reasonably foreseeable future actions. The Interdisciplinary team considered a compiled list of these activities which is described in the Environmental Assessment. The geographic cumulative effects are extended to the Forest Service allotments which overlap into the project area. This cumulative effects portion of the report is going to discuss the effects of treatments applied to

the landscape on livestock habituation, roads, prescribed fire, reduction in stocking rate and the changes on natural barriers.

Vegetation treatments with a combination of fuels reduction would create an additional 10,858 acres of transitory range. This project would produce some effects regarding a change in livestock management, habituation of livestock on the landscape, effects to range infrastructure, changes in natural barriers and changes to the stocking rate. On a broad scale spectrum, the overall amount of transitory range would increase due to the treatments proposed within the project area.

The proposed action plans to use prescribed fire to reduce fuel loading and introduce fire back onto the landscape. Domestic and game animals prefer to graze on recently burned areas. Animals are attracted to more palatable feed, to more easily available feed or to both (Duvall and Whitaker 1963, 1964). By using prescribed fire in the proposed action livestock would have greater foraging opportunities leading to better livestock distribution. Forage would become more readily available in the uplands and reduce the amount of time spent foraging in riparian areas.

Resource Indicator and Measure 1

The activities in the proposed action combined with past, ongoing and reasonably foreseeable future actions would not cumulatively affect transitory range within the affected Forest Service grazing allotment due to no overlap in time and space.

Resource Indicator and Measure 2

The activities in the proposed action combined with past, ongoing and reasonably foreseeable future actions would not cumulatively affect natural barriers within the affected Forest Service grazing allotment due to no overlap in time and space.

Table 5. Resource indicators and measures for alternative 2 cumulative effects

Resource Element	Resource Indicator	Measure	Proposed Action Cumulative Effects
Transitory Range	Stocking Rate	Acres Per Cow/Calf Pair	126 acres per Cow/Calf pair which is an increase of 33 acres per pair. Reduction of stocking rate, better livestock distribution in the uplands, and an increase in the amount of understory vegetation is suitable for grazing
Natural Barriers	Presence or Absence before treatment	Specific Locations	Natural Barriers would remain after treatment

7.0 - Summary

The Sanpoil Project would be beneficial to range management by producing a more open timber stand with a more productive understory, as well as by improving conditions on primary rangelands due to improved nutrient cycling and removal of debris due to fuels management projects. These treatments would create approximately 10,858 acres of transitory rangelands which would be able to provide quality forage to permitted livestock for up to 30 years.

If implemented, the proposed action would create transitory rangeland for livestock grazing in upland sites. By providing grazing opportunities in uplands, livestock would be less likely to loiter in riparian areas.

By implementing the proposed action, grazing lands would be at a reduced risk of damage caused by stand-replacing wildfire, which could create hardships for grazing permittees and cause widespread damage to grazing allotments and range improvements.

7.3 - Summary of Environmental Effects

The summary of environmental effects discloses the two alternatives which consist of the proposed action or no-action. The two resource elements analyzed were transitory range and natural barriers. The proposed action would bring a change to the existing condition which would result in changes to the stocking density of livestock and distribution within the grazing allotment. The presence/absence of natural barriers on the landscape would also change due to the proposed action.

By not implementing the proposed action, the amount of transitory range would remain at its current condition. Stocking rate would remain the same and there would remain approximately 93 acres per cow/calf pair within the Quartz allotment. If the proposed action was implemented, there would be an increase in transitory range within the Quartz allotment of 10,858 acres. This would reduce the stocking rate of livestock and provide an additional 33 acres per cow/calf pair within the Jasper allotment.

If the proposed action was not implemented than the natural barriers would remain on the landscape at their current condition. The natural barriers would persist and livestock management/control by these features would bring no change. If the proposed action was implemented, an increase in the amount of transitory range would occur, there would be better livestock distribution across the landscape, the stocking rate would be reduced and improvement would occur with more options to manage livestock.

Table 11. Summary comparison of environmental effects to range resources

Resource Element	Indicator/Measure	Alt 1	Alt 2
Transitory Range	Stocking Rate (acres per cow/calf pair)	93 acres per cow/calf pair	33 additional acres per cow calf pair to promote reduction of stocking rate, better livestock distribution in the uplands, and an increase in the amount of understory

			vegetation is suitable for grazing
Natural Barriers	Presence/Absence	Natural Barriers Remain on Landscape	No Changes

8.0 - Compliance with LMP and Other Relevant Laws, Regulations, Policies and Plans

The Proposed Action is consistent with the LMP (USDA 2019), the Multiple-Use Sustained Yield Act of 1960, and Forest Service Manuals 2200 and 2070 (USDA 2005b, 2008a). LMP desired conditions for Livestock Grazing provide for the availability of suitable grazing land and for the maintaining of or improvement of forage. Livestock range management is primarily regulated through the allotment management plan (AMP) process. LMP direction gives overall guidance for livestock management while deferring specific guidance for livestock grazing within allotments to the AMP. The Quartz AMP requires coordination of timber harvesting and related activities within the AMP—i.e., timing of the timber harvest and associated activities and grazing schedules; protection of livestock barriers or mitigation of these values where desirable; reducing the spread of noxious weeds and controlling noxious weeds where present.

LMP direction and consistency is addressed through the development and implementation of prescriptions and design elements pursuant to LMP direction for the Proposed Action as discussed above and listed in Chapter II of the draft EA.

13.0 - References Cited

Duvall, V. L. and L. B. Whitaker. 1964. Rotation burning: A forage management system for longleaf pine-bluestem ranges. J. Range Mgmt. 17:322-32

Gillen, R.L., W.C. Krueger and R.F. Miller (1984) Cattle Distribution on Mountain Rangeland in Northeastern Oregon, Journal of Range Management, 37(6): 549-553.

Holechek, Jerry L. (1981) Livestock Grazing Impacts on Public Lands: A Viewpoint, Journal of Range Management, 34(3): 251-254.

Society for Range Management. 1974. A Glossary of Terms Used in Range Management, 2nd Edition. Society for Range Management, Denver, Colo.

Sprietzner, P. N. 1985. Transitory Range: A new frontier. Rangelands 7:33-34.

U.S. Department of Agriculture, Forest Service. 2019. Colville National Forest Land Management Plan, Final Environmental Impact Statement, and Record of Decision. Pacific Northwest Region, Portland, OR.

Van Poolen, H.W., and J.R. Lacey. 1979. Herbage response to grazing systems and stocking intensities. J. Range Manage. 32:250-253